# Change is COOL!



Another important physical property of matter is phase. The three most common phases of matter are solids, liquids, and gases. Water can exist in the solid, liquid, or gas phase. Most substances can exist in different phases. Changes in phase are also physical changes. For example, the physical properties of ice and steam are quite different but they are both water. There is no change in the chemical nature of the two substances. Solid gold and liquid gold are exactly the same chemically even though the phases (solid and liquid) are different.

Image courtesy of Dot Zangari - her web site has several glacier photos!

Examples of phase changes include melting, freezing, condensation, evaporation, and sublimation. Melting occurs when a solid changes to a liquid. Freezing occurs when a liquid becomes a solid. Condensation involves a gas becoming a liquid. Evaporation involves a liquid becoming a gas and sublimation is the change of a solid directly to a gas. Phase changes require either the addition of heat energy (melting, evaporation, and sublimation) or subtraction of heat energy(condensation and freezing). Changing the amount of heat energy usually causes a temperature change. However, DURING the phase change, the temperature stays the same even though the heat energy changes. This energy is going into changing the phase and not into raising the temperature. That's why water doesn't get hotter as it is boiling. The temperature remains constant until the phase change is complete.



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